

Utah Health Status Update:

Dimensions of Injury Mortality in Utah

September 2004

Utah Department of Health

Introduction

In 2002 in Utah there were 1,262 deaths due to injuries from external causes, accounting for approximately 10% of all deaths. These deaths are typically classified as unintentional, suicide, homicide, legal intervention, or undetermined intent. This classification shows useful, but very basic, cause-of-death information. A relatively new statistical method, the external cause of injury mortality matrix, provides a richer understanding of the dimensions of injury mortality in Utah.

The International Classification of Diseases (ICD), used for classification of injury mortality, is actually three-dimensional:

- **Intent** is the purpose or manner of the injury [i.e., unintentional, intentional (suicide or homicide), or undetermined].
- **Mechanism** of death is the vector that transfers energy to the body (e.g., firearm, poison, motor vehicle).
- **Nature** of injury is the anatomical site (e.g., head, thorax) or overall effect on the body (e.g., asphyxiation) of the injury.

Following international statistical standards, injury deaths are reported and ranked with the focus first on the intent of death, then the mechanism. The major intent categories (accidents, suicide, homicide, legal intervention, and acts of war) are considered rankable causes. Figure 1 shows injury deaths among Utah residents in 2002 tabulated according to the rankable causes of death in the ICD-10 List of 113 Selected Causes of Death.

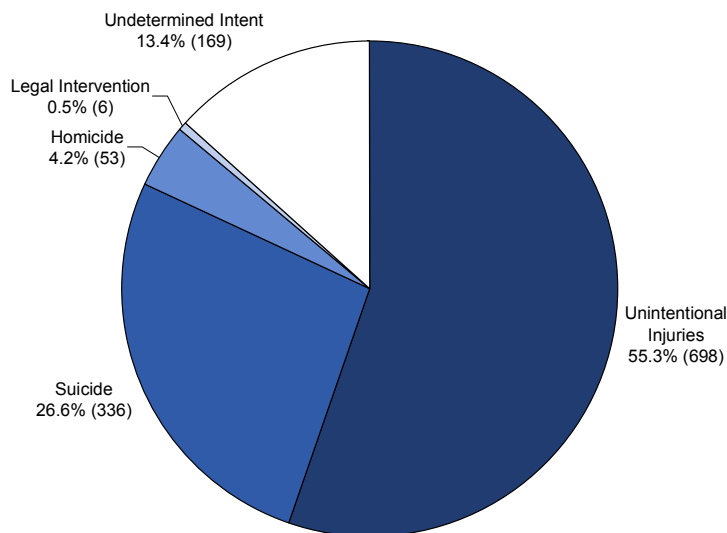
This usual representation of injury mortality lacks detail on mechanism of death, particularly for suicides and homicides. In addition, totals for mechanisms across intent categories are not shown. For example, to obtain the total number of firearm-related deaths, one would have to sum the firearm totals from each intent category.

External Cause of Injury Mortality Matrix

The external cause of injury mortality matrix was developed as a standard framework

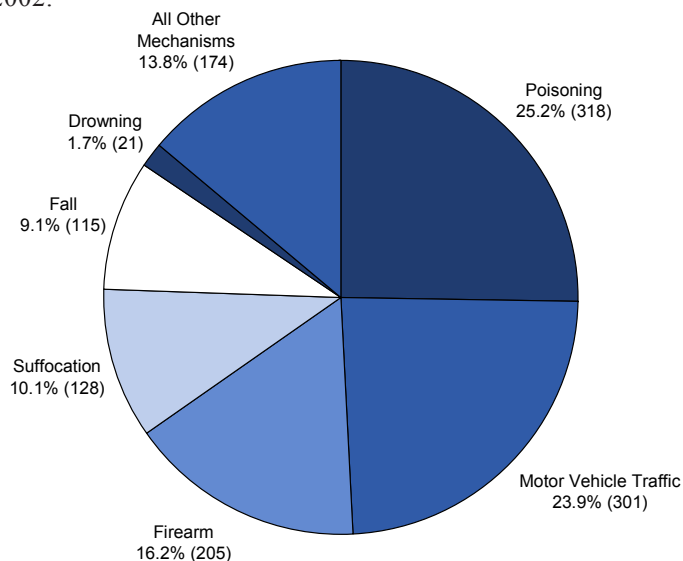
Injury Deaths by Intent

Figure 1. Percentage and number of injury deaths by causes, Utah residents, 2002.



Leading Mechanism of Injury Death

Figure 2. Leading mechanisms of injury deaths, all intents, Utah residents, 2002.



to present injury data by both mechanism and intent. The mortality matrix was jointly developed by the Injury Control and Emergency Health Services (ICEHS) section of the American Public Health Association and the International Collaborative Effort (ICE) on Injury Statistics. The mortality matrix developed for ICD-10 is pre-

sented in *Deaths: Injuries, 2001*, a report in the National Vital Statistics Series published by the National Center for Health Statistics.¹

As a standard presentation of injury deaths, the mortality matrix provides more detail in terms of mechanism of death and displays totals for mechanisms across intent categories. Figure 2 shows the leading mechanisms of injury deaths across all intent categories for deaths among Utah residents in 2002. Four mechanisms of death accounted for 75% of all external injury mortality: motor vehicles, firearms, suffocation, and poisoning.

Using the matrix, it is also possible to show leading mechanisms within intent categories, as in Figure 3. For unintentional injuries, the single most important mechanism was motor vehicles (46%). Note that in 2002, there were no unintentional mortal injuries due to firearms. By contrast, in most suicides and most homicides, firearms were the mechanism of death. In the vast majority of cases where intent was undetermined, poisoning was the mechanism (75%).

Figure 4 examines the nature of injury dimension by intent. As can be seen, injuries to the head, neck, thorax, and to multiple sites are primarily unintentional injuries. However, nearly two thirds of asphyxiations are suicides. Slightly less than half of poisonings (47.6%) and lower extremity injuries (47.9%) in cases of external injury mortality are of undetermined intent.

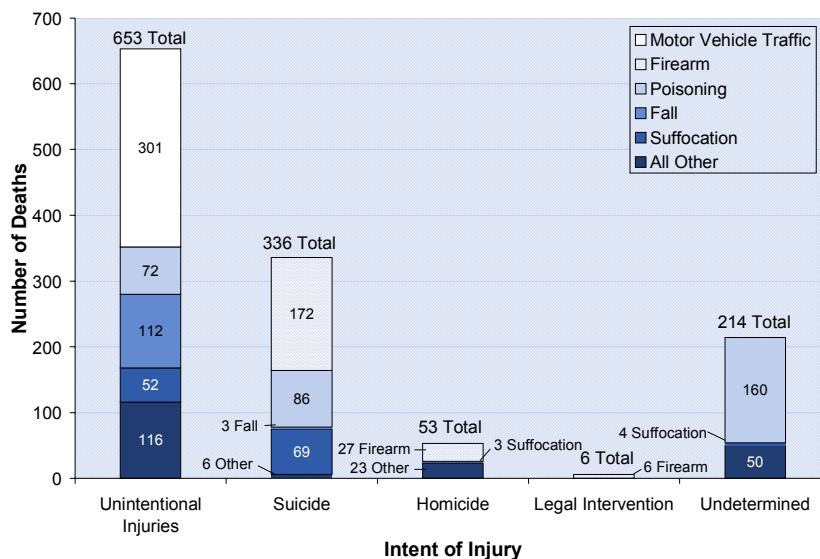
Public health violence and injury prevention activities are multidimensional, promoting healthy attitudes and behaviors, but also reducing the presence of hazards in the environment. Improved understanding of the several dimensions of injury mortality will contribute to these efforts.

References

1. Anderson RN, Minino AM, Fingerhut LA, Warner M, Heinen MA. *Deaths: Injuries 2001*. National Vital Statistics Reports Volume 52, Number 21. National Center for Health Statistics, 2004.
2. World Health Organization. *International Classification of Diseases and Related Health Problems*, Tenth Revision. Geneva: World Health Organization. 1992.

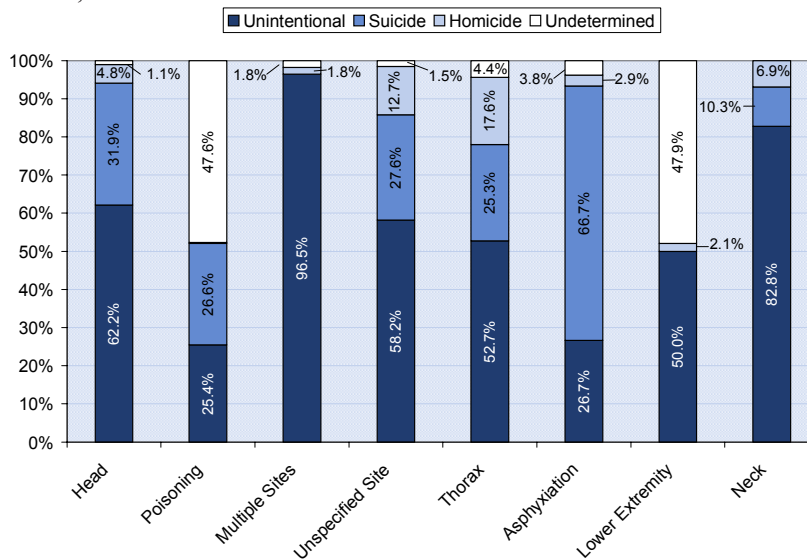
Leading Mechanism of Injury Death by Intent

Figure 3. Leading mechanism numbers of injury death by intent, Utah residents, 2002.



Nature of Injury by Intent

Figure 4. Percentage of injury nature (any mention) by intent, Utah residents, 2002.



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